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ISENBRUCK ET AL-
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NR. 439 S. 2/7
NO. 953 P. 3

DOCKET NO: 294001US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF

HEIKE BECKER, ET AL.

: EXAMINER: NGUYEN, T-A. N.

SERIAL NO: 10/587,269

:

FILED: JULY 26, 2006

: GROUP ART UNIT: 1796

RCE FILED: OCTOBER 17, 2008

RCE FILED: SEPTEMBER 25, 2009

FOR: POLYMER FOR TREATING
SURFACES

DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

I, Dr. Heike Weber (former Dr. Heike Becker), declare and state as follows:

1. I am a named coinventor in the above-identified application. I obtained a Ph.D. from the University of Göttingen, Germany, in the field of organic chemistry. I have been employed by BASF Aktiengesellschaft since 1997, where I have engaged in the field of acetylene derivatives and especially since 2002 in the field of polymers for detergents.

2. I am familiar with the claims, and have read the Office Action mailed June 10, 2010, in the above-identified application.

3. The Examiner finds that all the pending claims are unpatentable over US 6,777,530 (Meixner et al) alone or combined with other references. However, component A of present Claim 1 is clearly distinguishable from, and not suggested by, Meixner et al.

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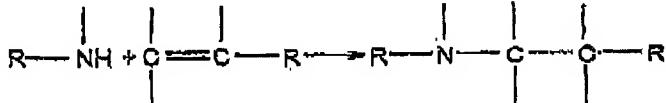
4. Said component A reads as follows:

- a) at least one water-soluble or water-dispersible compound as component A, which is prepared by
 - aa) crosslinking a compound selected from the group consisting of polyalkylenepolyamines, polyamidoamines grafted with ethylenimine, polyether-amines and mixtures of said compounds, as component Aa,
 - ab) with a compound selected from the group consisting of bifunctional crosslinkers having, as a functional group, a halogenhydrin, glycidyl, aziridine or isocyanate unit or a halogen atom, as component Ab, thereby forming a crosslinked reaction product, and
 - ac) reacting, by a Michael addition reaction at a temperature of from 30 to 100 °C, the crosslinked reaction product with, as component Ac, a monoethylenically unsaturated carboxylic acid selected from the group consisting of acrylic acid, methacrylic acid, ethylacrylic acid, salts, esters, amides or nitriles of monoethylenically unsaturated carboxylic acids, and mixtures thereof.

5. According to the present invention the following sequence of reaction steps is performed:

Grafted amine Aa + crosslinker Ab react in a Michael type reaction to give the water dispersible component A.

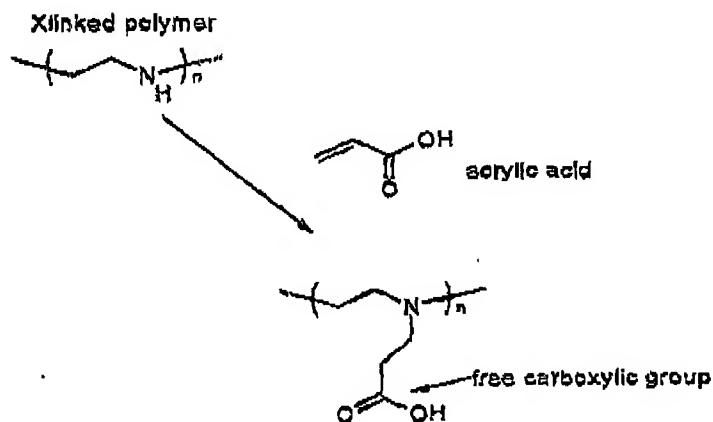
Michael type reactions means a reaction wherein an amine is added to a double bond as illustrated in the following formula



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6. The order of reaction shows critical evidence, because completely different products are obtained if the crosslinking of the polyalkylenepolyamines, polyamidoamines grafted with ethylene imines, polyetheramines or mixtures thereof is carried out before the reaction with the monoethylenically unsaturated carboxylic acid or after the reaction with a monoethylenically unsaturated acid. In the first case, which is as the presently-claimed invention, wherein the crosslinking is carried out first, a crosslinking of the main chain of the polyalkylenepolyamines, polyamidoamines grafted with ethyleneimine or polyetheramines occurs and no crosslinking of the side chains which are introduced by reaction with the monoethylenically unsaturated carboxylic acids occurs. However, in the second case, if the reaction with the monoethylenically unsaturated carboxylic acids is carried out first and thereafter a crosslinking occurs, the crosslinking occurs also between the side chains of the compounds comprising side chains derived from the monoethylenically unsaturated carboxylic acids.

7. The following scheme shows the partial structure of the reaction product obtained by reacting crosslinked polyethyleneimine with an α,β -unsaturated carboxylic acid by a Michael-addition:



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It is shown that component A according to the present invention comprises free carboxylic groups (COOH).

8. Meixner et al discloses crosslinked nitrogenous compounds which are soluble or dispersible in water and which are obtainable by crosslinking of (a) compounds containing at least three NH groups ("polyamine compounds") with (b) at least bifunctional crosslinkers which react with NH groups (column 2, lines 12-18), wherein compounds (a) may be, for example, a polyalkylenepolyamine, a polyamidamine grafted with ethyleneimine, a polyetheramine, or mixtures thereof (column 2, line 45ff) and crosslinkers (b), may be, for example, preferably selected from a long list of compounds grouped in groups (1)-(13) and mixtures thereof, among which groups include compounds having halogenhydrin, glycidyl, or aziridine groups, as well as, in group (3), monoethylenically unsaturated carboxylic acids, and their salts, esters, amides, or anhydrides (hereinafter referred to generically as "monoethylenically unsaturated carboxylic acids") (column 7, line 65ff).

9. This reaction is not a Michael addition reaction but a condensation reaction, as described by Meixner et al: "The reaction is preferably carried out in an aqueous medium. Condensation of components a) and (b) is carried out (column 10, lines 64-65, emphasis added.)

10. Although Meixner et al refers in column 9, line 40 to a Michael addition, this is not the reaction between a grafted amine and a crosslinker according to the present invention but a reaction for the preparation of the crosslinker. The crosslinker may be prepared by reaction of (column 8, line 11) polyetherdiamines, alkylene diamines, polyalkylene-polyamines, bifunctional or multifunctional alcohols, alkylene glycols, polyalkylene glycols, functionalized polyesters or polyamides or their mixtures with monoethylenically unsaturated carboxylic acids or their esters,

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amides or anhydrides, the reaction products having at least two ethylenic double bonds, carboxamide, carboxyl or ester groups as functional groups.

Additionally it is noted that the amines used according to Meixner et al for the preparation of the intermediate crosslinker are not grafted amines such as the amines Aa to be used according to the present invention.

11. Meixner et al neither discloses nor suggests crosslinking their compound (a) with a crosslinker (b) other than their monoethylenically unsaturated carboxylic acid, and then reacting this crosslinked reaction product by a Michael addition reaction with the monoethylenically unsaturated carboxylic acid. In other words, Meixner et al discloses a monoethylenically unsaturated carboxylic acid only to crosslink their polyamine compound (a).

12. While the Examiner finds that Meixner et al discloses that acrylate groups are bonded to amine groups by Michael addition (column 9, line 40ff), this disclosure is in connection with Meixner et al's compound (a) being reacted with their crosslinker (b) described under group (4) (column 9, lines 23-38). In Meixner et al, their compound (a) is not yet crosslinked when a crosslinker (b) of group (4) is reacted therewith.

13. In the present invention, on the other hand, the monoethylenically unsaturated carboxylic acid is reacted with a crosslinked reaction product.

14. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false

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statements may jeopardize the validity of this application or any patent issuing
thereon.

5. Further declarant saith not.

Seiler Weber
Signature

27. 9. 10
Date